

Bird Beak Buffet

A bird's beak is a lightweight, bony elongation of its skull. The beak is covered with skin that produces keratin, the same material found in human fingernails and hair. On most birds, the keratin condenses and dries, forming the beak's hard, glossy, outer covering. The tip and cutting edges of the beak are constantly renewed as they wear away, just as human nails are.

Over the years, a wide assortment of bird beaks has evolved. Though many birds have straight beaks that are adapted to general feeding, some birds' beaks are examples of unique adaptations

Background Information:

An **adaptation** is a characteristic that helps an organism survive in its environment. Bird beaks have adapted for many things such as eating, defense, feeding young, gathering nesting materials, building nests, preening, scratching, courting, and attacking. The size and shape of a beak is specific for the type of food the bird gathers. For example, sparrows and cardinals have heavy short, thick, cone-shaped beaks that are used to crack seeds, and humming birds have thin bills to sip nectar. Woodpeckers have beaks that are long and chisel-like for boring into wood to eat insects. Water birds such as pelicans, herons, and snipes, all have beaks that are adapted for capturing specific prey. For example, pelicans have wide, spoon-shaped bills to help them scoop and capture fish from the water. Herons have dagger-like bills for spearing and grasping fish and frogs. Snipes have long beaks for probing in mud and water to find worms and other creatures.

Purpose: The purpose of this lab is to determine the best type of beak to pick up a certain type of food.

Hypothesis: Before the investigation begins, examine the utensils and food that will be used.

Make a prediction about the outcome of the investigation. Which bird beak will be successful in collecting each food source?

<u>Utensil</u>	<u>Food Resource</u>
Chopsticks	_____
Spork	_____
Clothespin	_____
Wooden Skewer	_____
Scissors	_____

If the _____ is the best type of beak, then it will pick up _____ food, because

Identifying Variables		
Independent	Dependent	Control

Materials: Use the following materials to ensure the best results.

- Spork
- Chopsticks
- Clothespin
- Wooden Skewer
- Scissors
- Bird Seed
- Gummy Worms
- Popcorn
- Marshmallows
- Sunflower seeds
- Macaroni
- Beans
- Cereal
- Paper Plate
- Stop Watch
- Form Ball

Procedure: Follow the steps below to ensure the best results.

1. Each group will consist of 4-5 students. Obtain one feeding dish and a small cup for each student at the table. Place the feeding dish in the center of the table. A small cup (stomach) should be placed in front of each student.
2. One type of beak (utensil) will be distributed each student at the table. Each student will hold the utensil with one hand and put the other behind his/her back. **Do not begin feeding until you are given the signal to begin.**
3. At the teacher's signal, students must compete for as much of that food resource as they can gather with their "beaks". Students will be allowed to "feed" for 15 seconds. All food must go into the "stomach" (cup)! If a piece of food is dropped anywhere except for the cup, it must go back in the feeding dish. Only **one** piece of food can be collected at a time.
4. Once students are instructed to stop "feeding", all utensils must put down. Students will count how many pieces of that particular food that were collected.
5. Each student will need to record the group's data in the table. Then, place the food back into the feeding dish for the next group.
6. Repeat the procedure for each food that is available, making sure to keep an accurate record of the data.

Students: Remember, you are now a bird. You are hungry. You can only eat with the beak (utensil) that you are given. Your survival depends on your ability to gather food.

Data:

	Bird Seed	Worms	Popcorn	Marshmallows	Sunflower Seeds	Pasta	Beans	Cereal
Spork								
Chopsticks								
Clothespin								
Wooden Skewer								
Scissors								

Analysis Questions

Directions: Answer the following questions using complete sentences.

1. Create a graph (on the back of this sheet) with the data gathered from the beak (utensil) that was used in the investigation.
2. If you were a bird that ate worms off the ground of a forest, what would be the best beak for you to use? Why?
3. If you were a bird that ate popcorn off the ground of a forest, would the beak that worked best for eating worms work best for this type of food?
4. When choosing a beak to use, what is the most important thing to consider? Why?
5. What would happen if all of the bird types in this activity flew to an island where no birds had been before and the only food available was pasta? What birds would die? What birds would survive?
6. If you came back to this island in 50 years, what should you expect to see? (What types of birds will live on the island?) Why?
7. Suppose a drought severely dried out an area causing the worms to go deeper in the ground. How might this affect various bird populations and adaptations?

